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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,709	07/28/2003	Atsushi Kono	MAT-8450US	6708

7590 03/08/2006

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EXAMINER	
VORTMAN, ANATOLY	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/628,709	KONO ET AL.	
	Examiner	Art Unit	
	Anatoly Vortman	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2006 (Appeal brief)*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Reopening of Prosecution After Appeal

1. In view of the Appeal brief filed on November 10, 2005, PROSECUTION IS HEREBY REOPENED. The finality of the outstanding final Office action is being withdrawn and new final Office action including new grounds of rejection is set forth below. The finality is proper in view of amendments to the claims presented in the reply of April 6, 2005 to non-final Office action. To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of US/6,403,234 to Kodama et al., (Kodama) or alternatively in view of AAPA taken alone.

Regarding claims 1, 2, and 8, AAPA teaches (see instant application, Fig. 5; p. 1, lines 10-27; and p. 11, lines 1-12) a thermal fuse comprising a fusible alloy (1) including tin; a couple of lead conductors (2) connected to both ends of said fusible alloy (1), respectively; and surface layers (2a) made of composition having no orientation and comprising metal including tin as main substance (i.e. substantially entirely made of tin), said surface layers (2a) provided on said lead conductors (2), respectively, but did not disclose that said surface layers have thickness not greater than 14μm and not less than 1μm.

Kodama teaches conventionality of plating electrical connectors with Sn or Sn alloys (see column 1, lines 10+) and, further, that plating structure including intermediate layers and a surface plating layer made of **Sn or Sn based alloy** having thickness in a range from **0.3 to 3 μm** may be used ***for reduction of the insertion force*** of electrical connectors (column 1, lines 50-67 and column 3, lines 58+).

Since inventions of AAPA and of Kodama are from the same field of endeavor (tin covered electrical connectors and devices employing them), the purpose of the plating structure

comprising Sn or Sn alloy surface layers having thickness 0.3 to 3 μm taught by Kodama would be recognized in the device of AAPA.

It would have been obvious to a person of ordinary skill in electrical arts pertained to electrical connectors at the time the invention was made, to substitute said tin surface layers of AAPA with plating structure comprising Sn or Sn alloy surface layers having thickness 0.3 to 3 μm as taught by Kodama in order ***to reduce insertion force*** of the AAPA lead conductors.

Further, it would have been obvious to a person of ordinary skill in electrical arts pertained to electrical connectors at the time the invention was made, to adjust the thickness of said Sn or Sn alloy surface layers of Kodama to be within the claimed range, ***in order to achieve specific desired insertion force of said lead conductors,*** since claimed range and one of Kodama are overlapping each other. It is well settled (see In re Peterson, 65 USPQ2d 1379 (CA FC 2003)) that even a slight overlap in range establishes a prima facie case of obviousness. E.g., In re Woodruff, 919 F.2d at 1578, 16 USPQ2d at 1936-37 (concluding that a claimed invention was rendered obvious by a prior art reference whose disclosed range ("about 1-5%" carbon monoxide) abutted the claimed range ("more than 5% to about 25%" carbon monoxide)); In re Malagari, 499 F.2d at 1303, 182 USPQ at 553 (concluding that a claimed invention was rendered prima facie obvious by a prior art reference whose disclosed range (0.020-0.035% carbon) overlapped the claimed range (0.030-0.070% carbon)); see also In re Geisler, 116 F.3d at 1469, 43 USPQ2d at 1365 (acknowledging that a claimed invention was rendered prima facie obvious by a prior art reference whose disclosed range (50-100 Angstroms) overlapped the claimed range (100-600 Angstroms)). Further, the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of

percentage ranges is the optimum combination of percentages. See In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980) .

Alternatively, it would have been obvious to a person of ordinary skill in electrical arts pertained to electrical connectors at the time the invention was made, to make said tin surface layers of AAPA having thickness not greater than 14μm and not less than 1μm, in order to achieve desired fusing characteristics of a fuse or desired insertion force of the lead conductors, since it has been held that where the general conditions of a claim are disclosed in the prior art (i.e. in AAPA), discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 6, Kodama further teaches that surface layers may include copper (see table 10, line 14).

Regarding claims 3-5 and 7, claims recite additional tin supplementing materials to make up the composition of the surface layers (i.e. silver and bismuth).

It would have been obvious for a person of ordinary skill in the arts pertained to electrical connectors at the time the invention was made to supplement tin in said surface layers with any suitable well known material, such as the aforementioned silver and bismuth, in order to achieve desired characteristics of the lead conductors, or desired fusing characteristics of a fuse, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 19-23, the claims recite various ranges of wt.% for the aforementioned supplementing materials (i.e. silver, copper and bismuth).

It would have been obvious to one having ordinary skill in the arts pertained to electrical connectors at the time the invention was made to select any appropriate ranges for said silver, copper and bismuth, in order to achieve desired properties of the lead conductors (e.g. workability, corrosion resistance, insertion force, fusing characteristics of a fuse, etc.), since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claims 10-18 and 24-28, the method steps recited in the claims are inherently necessitated by the device structure as taught by combination of AAPA and Sugawara.

Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

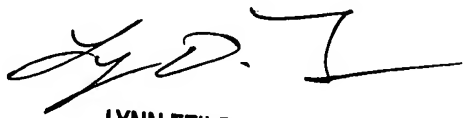
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 571-272-2047. The examiner can normally be reached on Monday-Friday, between 10:00 am and 6:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Lynn Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AV

Anatoly Vortman
Primary Examiner
Art Unit 2835



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